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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,930	06/13/2005	Bernhard Faust	112740-1071	5935
29177 7590 06/05/2007 BELL, BOYD & LLOYD, LLP P.O. BOX 1135 CHICAGO, IL 60690			EXAMINER CHOW, CHARLES CHIANG	
			ART UNIT 2618	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/538,930		FAUST, BERNHARD	
	Examiner		Art Unit	
	Charles Chow		2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/13/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-39 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/13/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In **claim 35**, the "wherein the input device is a mobile telephone or other transmit and/or receive unit" is confusing against the input device 1 in Fig. 1 [applicant's paragraph 0030] which is not the mobile telephone or other transmit and/or receive unit. For the examining purpose, it is assumed the input device is a part of a mobile telephone.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 21, 23-24, 26, 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton [US 5,917,906] in view of Boedecker [US 5,747,756] and Kfoury et al. [US 2003/0044,000 A1].

For claim 21, Thornton teaches an input device [the touch pad assembly 75 for the user interface, Fig. 1 & col. 1, line 59 to col. 2, line 16] comprising

a flexible carrier [the ploy dome sheet 31, Fig. 1, col. 4, lines 43-46],

at least one entry pad overlay 50 is connected to said flexible carrier [50 is connected to the flexible carrier 31 via dome 30 & spacer 40, Fig. 3/Fig. 1 its corresponding description],

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wherein an input signal is generated by pressing the entry pad overlay 50 [user depress dome 30 via entry surface 51, to generate input signal. col. 5, lines 16-29];

at least one fixing means [spacer sheet 40, Fig. 1], arranged between a first plane that includes the at least one entry pad overlay 50, and a second plane of the flexible carrier [31/30, Fig. 1] connected to the entry pad overlay 50 [the plane of 30/31 joins to the plane of 50, via the plane of spacer 40 as the fixing means, Fig. 3, col. 4, line 61 to col. 5, line 11],

wherein the at least one entry pad overlay 50, and the flexible carrier [31], is configured in such a way that force can be transmitted in a substantially punctual manner through a plane [40] that includes the fixing means [user's pressing entry pad 51 & force goes through fixing means spacer 40, to dome 30, col. 4, line 61 to col.4, line 61 to col. 5, line 11].

Thornton teaches the entry pad overlay 50 positioned above spacer 40, 31, and dome 30 is connected to the flexible 31, but fails to teach the at least one cap connected to the flexible carrier.

Boedecker teaches the at least one cap connected to the flexible carrier [cap 128B connected to the protrusion 112B of the flexible layer 124, Fig. 1, col. 4, line 55 to col. 5, lines 12], to order to send the input selection by pressing the key cap 128A of the switch. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Thornton with Boedecker's key cap 128A, such that the user could provide the selection input by the pressing of the key cap.

Thornton & Boedecker fail to teach the terminal edge of the fixing means.

Kfoury et al. [Kfoury] teaches the wherein the fixing means, in one area of at least one terminal edge, is configured in such a way that it can secure the input device in or on a housing [the fixing means 615 has at least one terminal edge, tab 634, to secure the input device, keypad assembly 611 to the housing, Fig. 7 & its corresponding description in the

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specification; the securing to the recess 804/bump 802 in paragraph 0027, Fig. 10], in order to secure the keypad assembly to the housing [paragraph 0027]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton, Boedecker with Kfoury's tab 634, recess/bump 802, such that the keypad could be secured to the housing.

[Note: **Washizuka et al. [US 4,074,118]** teaches the fixing means 49, rubber carrier 45, cap 50/48 [Fig. 3 & its corresponding description in the specification; **Prioux et al. [US 4,499,343]** teaches the top key cap layer 44 with protrusion 46, the spacer 38 with openings 40, the flexible plastic layer 12 with protrusions 24 with underside switch contact, in Fig. 1 & its corresponding description in the specification].

For claim 23, Thornton teaches an input device 75, wherein the fixing means [40] is configured as a lattice with recesses [aperture 41, Fig. 1], through which the at least one cap can move in a direction of actuation [the entry pad 50 is moving down to actuate 21 via dome 30, col. 5, lines 19-23].

For claim 24, Thornton teaches an input device 75. Thornton & Boedecker fail to teach the cap has a dimension that is greater than an opening in the fixing means.

Kfoury teaches wherein the at least one cap has, perpendicular to a direction of actuation in at least one spatial direction, a dimension that is greater than an opening in the fixing means [the cap 128A in Fig. 1 is greater than the opening 120 of the fixing means 118, since post 112A protrudes upwards through 120, Fig. 1, col. 4, lines 48-54], so that the cap 128A could protect post 112A, as the motivation to combine Kfoury to Thornton & Boedecker.

For claim 26, Thornton teaches an input device 75. Thornton & Boedecker fail to teach the cap has an mushroom-like cross section.

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Kfoury teaches the wherein the cap has, at least in one sectional plane parallel to the direction of actuation, an approximately mushroom-like cross-sectional form [the key 610 in Fig. 9 has the mushroom-like cross section is form, paragraph 0010, 0028], to provide tactile interface to user's finger, via mushroom-like 610, as the motivation to combine Kfoury to Thornton & Boedecker.

For claim 28, Thornton teaches an input device 75. Thornton & Boedecker fail to teach the terminal edge of the fixing means.

Kfoury teaches the wherein at least one terminal edge [634] of the fixing means is configured as a type of overlapping periphery and/or flange [Fig. 10 shows the overlapping to the periphery] for securing the input device in or on a housing [the securing the keypad 611 to the housing, paragraph 0027], in order to secure the keypad with the tab 634, as the motivation to combine Kfoury to Thornton & Boedecker.

For claim 29, Thornton teaches an input device 75. Thornton & Boedecker fail to teach the two respectively opposing terminal edges of the fixing means.

Kfoury teaches the wherein two respectively opposing terminal edges of the fixing means are configured as a type of overlapping periphery and/or flange [the left, right, opposing tabs 634 in Fig. 7, overlapping in Fig. 10], to further secure the key element with balanced force from opposing, left, right, tabs 634, as the motivation to combine Kfoury to Thornton & Boedecker.

For claim 30, Thornton teaches an input device 75, and wherein fixing means is inserted loosely into the respective housing, especially where the span widths or opening widths of a housing aperture or of a keyboard opening are small [the spacer sheet 40 is obviously fitting into the opening of the phone face housing 20, in order to access the touch pad surface 21].

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3. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Boedecker, Kfoury, as applied to claim 21 above, and further in view of Aaltonen et al. [US 6,274,825 B1].

For claim 22, Thornton teaches an input device 75. Thornton & Boedecker fail to teach the wherein the fixing means comprises a metal sheet.

Aaltonen et al. [Aaltonen] teaches the wherein the fixing means comprises a metal sheet [the metal sheet 54 as the fixing means to secure the dome 30, Fig. 1 & col. 3, lines 3-20], to secure the dome 30 with metal sheet. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton & Boedecker with Aaltonen's metal sheet, such that the domes could be secured by the metal sheet.

4. Claims 25, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Boedecker, Kfoury, as applied to claim 21, 23 above, and further in view of Jekot et al. [US 4,862,499].

For claim 25. Thornton teaches an input device 75. Thornton & Boedecker fail to teach the wherein the cap is configured on an operable exterior or user interface to project over the respective recess and to protrude through the recesses.

Jekot et al. [Jekot] teaches the wherein the cap is configured on an operable exterior or user interface to project over the respective recess and to protrude through the recesses [the key cap 30 is configured to project through the opening 22 of the fixing means & housing 20, Fig. 2, & its corresponding description in the specification], in order to protect the key element under the key cap 30, from the hazardous environment [col. 1, lines 35-48].

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Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton, Boedecker, Kfoury with Jekot's key 30, in order to protect the key element under the key cap 30, from the hazardous environment.

For claim 27, Thornton teaches an input device 75, further comprising at least one projection on the flexible carrier [the projection of dome 30 on the flexible ploydome sheet 31, Fig. 1], but fails to teach the cap fixed on the projection.

Boedecker teaches the wherein said at least one projection are configured to protrudes through the recesses in the stable fixing means and is covered by a respective at least one cap fixed on the projection [the cap 128A covers the post 112A passing through the opening 120 of fixing means 118, Fig. 1 & its corresponding description in the specification], such that the cap could protect the post protrusion, as the motivation to combine Boedecker to Thornton.

5. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Boedecker, Kfoury, as applied to claim 21 above, and further in view of Domzalski et al. [5,898,147].

For claim 31, Thornton teaches an input device 75. Thornton, Boedecker, Kfoury fail to teach the bent sheet.

Domzaiski et al. [Domzalski] teaches wherein the fixing means is connected to the housing rigidly and/or in one piece, whereby the fixing means is preferably configured as a punched and bent sheet-metal part [the fixing means surface plate 12 has opening for button 15 & bent down portion to hook to flange 28, 30 of the base 20, col. 5, lines 18-30, Fig. 1-4], such that the key actuator 14/15 could be secured to the housing. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was

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made to improve Thornton, Boedecker, Kfoury with Domzalski fixing means 12, such that the key actuator 14/15 could be secured to the housing.

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Boedecker, Kfoury, as applied to claim 21 above, and further in view of Hahm et al. [US 2001/0003,539 A1].

For claim 32, Thornton teaches an input device 75. Thornton & Boedecker, Kfoury fail to teach the one material and the piece manufactured fixing means and an associated housing part.

Hahm et al.[Hahm] teaches the wherein the fixing means and an associated housing part are configured from one material and are manufactured in one piece in an essentially joint production step [the housing cover 101 is integrated with the fixing means, as the one material with one piece, to retaining the key caps 112 within the lattice holes 102, paragraph 0035-0036], such that the production process could be reduced. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton, Boedecker, Kfoury with Hahm's housing cover 10, such that the production process could be reduced.

7. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Boedecker, Kfoury, as applied to claim 21 above, and further in view of Anzai [US 6,639,159 B2].

For claim 33, Thornton teaches an input device 75. Thornton & Boedecker, Kfoury fail to teach the fixing means forms a three dimensional keypad surface.

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Anzai teaches the wherein the fixing means forms a three-dimensional keypad surface or user interface [the three dimensional key input surface 3 in Fig. 4 has the fixing means 8-9, 12-13, 17-18, Fig. 1-3, col. 7, line 1 to col. 8, line 45], such that the user could easily enter the input from the three dimensional keypad surface. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton, Boedecker, Kfoury with Anzai's three dimensional keypad, such that the user could easily enter the input from the three dimensional keypad surface.

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Boedecker, Kfoury, as applied to claim 21 above, and further in view of Park [US 2002/0032,011 A1].

For claim 34, Thornton teaches an input device 75. Thornton, Boedecker, Kfoury fail to teach the ESD protection.

Park teaches the wherein the fixing means is configured as an ESD protection [the ESD grouding paths for the ESD protection, paragraph 0029, 0027Fig. 4/Fig. 5], such that the ESD damage could be avoid. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton, Boedecker, Kfoury with Park's ESD grounding, such that the ESD damage could be avoid.

9. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Boedecker, Kfoury, as applied to claim 21 above, and further in view of Pratt et al. [US 2004/0085,360 A1].

For claim 35, Thornton teaches an Input device 75 is a part of a radio telephone [Fig. 1, col. 4, lines 1-16]. Thornton, Boedecker, Kfoury fail to teach the transmission and/or

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representation of data in the form of text and/or image data with or without sound, which data is encoded as elements of a set of data to be transmitted in conformance with the same or different standards.

Pratt et al. teaches the transmission and/or representation of data in the form of text and/or image data with or without sound, which data is encoded as elements of a set of data to be transmitted in conformance with the same or different standards [the sending & saving of user entered text message with keypad 103, paragraph 0031-0034, for transmitting text message according to the wireless communication standard, paragraph 0060], such that user could enter text message for transmitting by using the keypad. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton, Boedecker, Kfoury with Pratt's entering text message via keypad, such that user could enter text message for transmitting by using the keypad.

10. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Inagaki et al. [US 5,613,599].

For claim 36, Thornton teaches an input device 75, but fails to teach the method for the production of an input device comprising producing a flexible carrier, fixing means & molding the cap.

Inagaki et al. [Inagaki] teaches the method for the production of an input device [the forming of the film sheet in Fig. 12A-12C, the forming of the key top in Fig. 14, the manufacturing of the name plate in Fig. 13A-13C, summary of invention, Fig. 1-19 & its corresponding description in the specification] comprising

producing a flexible carrier with at least one cap for configuring at least one key [the forming of the key top 50-6 layer in col. 8, lines 29-67 & Fig. 14],

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wherein the flexible carrier comprises at least one projection that is partially guided through a recess of a fixing means, and a cap as the result of a thermoplastic shaping and/or reshaping process [the key top passing there through the hole on nameplate in col. 2, lines 40-56, & key top is thermally shaped by the film sheet in col. 2, lines 26-39],

the molding the cap on the flexible carrier after the fixing means and the flexible carrier have been assembled [Fig. 17 & col. 7, lines 1-15], to provide better smoothly key pressing, together with a small size [col. 2, lines 12-20]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton with Inagaki's method of manufacturing key top & switch, such that the key pressing could be smooth for the small sized key.

11. Claim 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornton in view of Inagaki, as applied to claim 36 above, and further in view of Boedecker-'756.

For claim 37, Thornton, Inagaki fail to teach the translucent material for the cap.

Boedecker teaches the wherein the cap is produced as a single part from a translucent material and is connected to the flexible carrier [the cap 128A is formed on flexible translucent layer 124 in col. 5, lines 30-31, Fig. 1-2, col. 5, lines 13-50], such that the light could be easily visible from the translucent key top. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Thornton, Inagaki with Boedecker's translucent cap layer 124, such that the light could be easily visible from the translucent key top.

For claim 38, Thornton fails to teach the further comprising fixing the at least one cap to and/or on a projection of the flexible carrier.

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Inagaki teaches the fixing the at least one cap to and/or on a projection of the flexible carrier [the fixing of thermal plastic film sheet 20 on top of the key top 50, Fig. 1, col. 2, lines 26-39], such that the key top is easily depressed with molded condition [col. 2, lines 30-39]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve Thornton with Inagaki's film sheet 20 for molding key top 50, such that the user could be easier to press the key top.

For claim 39, Thornton fails to teach the thermal locking. Inagaki teaches the wherein the step of fixing the at least one cap includes one of bonding, welding and form-locking, with or without thermal treatment [the thermal locking of the cap of film 20 to the top of key top 50, Fig. 1, col. 2, lines 26-39], such that the user could be easier to press the key top, as the motivation to combine Inagaki to Thornton.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. **Ishii [US 4,937,932]** teaches the key switch having top cap layer 14, fixing 5 with lattice & switch assembly 2-4, 8-10 [abstract, Fig. 1 & its corresponding description in the specification].

B. **Flint et al. [US 4,083,100]** teaches the manufactureing of a keyboard [abstract, Fig. 1-7, & its corresponding description in the specification].


C. Other references are also considered. They are: **Fukukura et al. [US 4,400,596]**, **Van Zeeland [US 5,990,772]**, **Naritomi [US 6,571,457 B2]**, **Hirai et al. [US 6,917,007 B2]**, **Yang [US 7,027,036 B2]**, **Levy [US 6,911,608 B2]**, **Jekot et al. [US 4,862,499]**, **Robinson et al. [US 4,033,030]**.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow *C.C.*

May 18, 2007.


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